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(54) Title: ALKYNE DERIVATIVES AS TRACERS FOR METABOTROPIC GLUTAMATE RECEPTOR BINDING

(57) Abstract: The present invention is directed to isotopically labeled alkyne derivative compounds, particularly <sup>11</sup>C, <sup>13</sup>C, <sup>14</sup>C, <sup>18</sup>F, <sup>15</sup>O, <sup>13</sup>N, <sup>35</sup>S, <sup>2</sup>H, and <sup>3</sup>H labeled compounds. In particular, the present invention is directed to <sup>11</sup>C, <sup>13</sup>C, <sup>14</sup>C, <sup>18</sup>F, <sup>15</sup>O, <sup>13</sup>N, <sup>35</sup>S, <sup>2</sup>H, and <sup>3</sup>H labeled heterocyclic alkynes and methods of their preparation. The present invention further includes a method of use of the <sup>11</sup>C, <sup>18</sup>F, <sup>15</sup>O, or <sup>13</sup>N labeled heterocyclic alkyne compounds as tracers in positron emission tomography (PET) imaging, particularly in the study of metabolic conditions in mammals, specifically conditions modulated by metabotropic glutamate receptors subtype 5 (mGluR5).